

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) An oxide based mixture for forming a ceramic matrix comprising:

a sol gel ~~matrix~~ comprising from about 10 wt% to about 25 wt% of metal oxide solids; and

alumina particles;

wherein the sol gel ~~matrix comprises~~ is mixed with said alumina particles to form a mixture including from about 40 wt% to about 70 wt% ~~of the matrix~~ said sol gel and ~~the alumina particles comprise from~~ about 30 wt% to about 60 wt% ~~of the matrix~~ said mixture includes said alumina particles.

2. (Currently Amended) The ~~ceramic matrix~~ mixture of Claim 1 wherein the sol gel ~~matrix~~ is selected from the group consisting of alumina sol, alumina-coated silica sol and silica sol.

3. (Currently Amended) The ~~ceramic matrix~~ mixture of Claim 2 wherein the ceramic ~~matrix~~ comprises from about 0 wt% to about 33 wt% of the silica sol.

4. (Currently Amended) The ~~ceramic matrix~~ mixture of Claim 3 wherein the ceramic ~~matrix~~ comprises from about 5 wt% to about 10 wt% of the silica sol.

5. (Currently Amended) The ~~ceramic matrix~~ mixture of Claim 1 wherein the alumina particles have a size of from about 0.1 μm to about 1.5 μm .

6. (Currently Amended) The ~~ceramic matrix~~ mixture of Claim 1 wherein ~~the ceramic matrix~~ said mixture further comprises a filler material.

7. (Currently Amended) The ~~ceramic matrix~~ mixture of Claim 6 wherein the filler material is a mullite.

8. (Withdrawn) A method of preparing an oxide-based ceramic matrix comprising the steps of:

providing a sol gel matrix , wherein the sol gel matrix comprises from about 10 wt% to about 25 wt% of metal oxide solids;

mixing the alumina particles into the sol gel to form the ceramic matrix wherein the alumina particles comprise from about 30 wt% to about 60 wt% of the ceramic matrix; and

if necessary adjusting the pH to prevent gelling of the ceramic matrix.

9. (Withdrawn) The method of Claim 8 wherein the sol gel is selected from the group consisting of alumina sol, silica sol and alumina-coated silica sol.

10. (Withdrawn) The method of Claim 8 wherein the alumina particles have a size of from about 0.1 μm to about 1.5 μm .

11. (Withdrawn) The method of Claim 8 wherein the pH of the matrix is adjusted by the addition of an acid.

12. (Withdrawn) The method of Claim 11 wherein the acid is selected from the group consisting of nitric acid, hydrochloric acid and sulfuric acid.

13. (Withdrawn) The method of Claim 8 further comprising the step of treating the mixture to form a homogeneous suspension.

14. (Withdrawn) The method of Claim 13 wherein the homogenous suspension is formed by ball milling, attritor milling, planetary milling or high-shear mixing.

15. (Withdrawn) A method of making fiber-reinforced oxide based ceramic matrix composite comprising the steps of:

providing a sol gel matrix, wherein the sol gel matrix comprises from about 10 wt% to about 25 wt% of metal oxide solids;

mixing the alumina particles into the sol gel to form a ceramic matrix wherein the alumina particles comprise from about 30 wt% to about 60 wt% of the ceramic matrix;

adjusting the pH to prevent gelling of the ceramic matrix, if necessary;

treating the ceramic matrix to form a homogenous suspension; and
infiltrating the homogeneous suspension into a ceramic fabric.

16. (Withdrawn) The method of Claim 15 wherein the sol gel matrix is selected from the group consisting of alumina sol, silica sol and alumina-coated silica sol.

17. (Withdrawn) The method of Claim 15 wherein the alumina particles have a size of from about 0.1 μm to about 1.5 μm .

18. (Withdrawn) The method of Claim 15 wherein the pH of the matrix is adjusted by the addition of an acid.

19. (Withdrawn) The method of Claim 18 wherein the acid is selected from the group consisting of nitric acid, hydrochloric acid and sulfuric acid.

20. (Withdrawn) The method of Claim 15 wherein the homogenous suspension is formed by ball milling, attritor milling, planetary milling or high-shear mixing.

21. (Withdrawn) The method of Claim 15 wherein the method further comprises the steps of calcining the infiltrated preform and sintering the infiltrated preform.

22. (Withdrawn) The method of Claim 21 wherein the method further comprises the step of repeating the infiltrating step and the calcining step.

23. (New) The mixture of claim 1, wherein said sol gel includes a metal oxide content of about 12 weight percent to about 20 weight percent.

24. (New) The mixture of claim 1, wherein said mixture includes more than about 50 weight percent of said alumina particles.